

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) In a computing environment, a system comprising:
a first component comprising a tree of clocks hierarchically related by synchronization rules and primitives, an event list generator, an interval generator, and a high-level timing component,
wherein the clocks correspond to clock properties received from an application program,
wherein the event list generator comprises a state machine and groups events initially scheduled by specified clock properties together with explicit interactive events received with respect to an animation into an event list,
wherein the states of the state machine comprise inactive, active, pause, and resume, and
wherein the interval generator uses the event list to compute a corresponding interval list;
a second component comprising a low-level timing component and a low-level computation engine,
wherein the second component receives the interval list from the first component,
wherein the low-level component interpolates parameter intervals to obtain instantaneous values and decodes instructions into rendering commands to be executed by a graphics device, and
wherein the low-level computation engine controls output based on current time and interpolates the location of an animated object based on interval data and current time;
a system clock which provides consistent time to both the high-level timing component and the low-level timing component and enabling the first component and the second component to remain in synchronization; and

an animation function subsystem that determines a current value for a varying property of an animated object.

2. (Original) The system of claim 1 wherein the output corresponds to a progress of an animation having an animated characteristic.

3. (Original) The system of claim 1 wherein the second component determines the output by interpolating a current progress value for the animated characteristic.

4. (Original) The system of claim 1 wherein the second component computes the output at a fast operating rate relative to an operating rate of the first component.

5. (Previously Presented) The system of claim 1, wherein the interval generator computes the interval data from an event list provided by the event list generator, the event list based on the clock data.

6. (Previously Presented) The system of claim 5 wherein the first component receives an interactive event, and wherein the event list generator further adds the interactive event into the event list.

7. (Previously Presented) The system of claim 6 wherein the event list generator further adds at least one implicit event into the event list.

8. (Previously Presented) The system of claim 6 wherein the event list generator marks at least one event in the event list as unused, the interval generation mechanism not using an unused event in computing the interval data.

9. (Original) The system of claim 1 wherein the clock data comprises property information corresponding to a begin time value and a duration.

10. (Original) The system of claim 1 wherein the clock data comprises property information corresponding to a repeat count.

11. (Original) The system of claim 1 wherein the clock data comprises property information corresponding to a reverse instruction.

12. (Original) The system of claim 1 wherein the clock data comprises property information corresponding to acceleration data.

13. (Original) The system of claim 1 wherein the clock data comprises property information corresponding to deceleration data.

14. (Original) The system of claim 1 wherein the clock data comprises property information corresponding to a seek instruction.

15. (Original) The system of claim 1 wherein the clock data comprises property information corresponding to speed data.

16. (Original) The system of claim 1 wherein the clock data comprises property information corresponding to function data.

17. (Original) The system of claim 1 wherein the first component and second component execute on different threads.

18. (Currently Amended) In a computing environment, a method comprising:
a first component receiving clock data and graphics data;
an event list generator grouping together explicit interactive events with events initially scheduled by specified clock properties;
the event list generator walking a combined list of scheduled and interactive events and inserting implicit events;
the event list generator a state machine generating an event list from clock properties and interactive events;
pairing off events to form intervals, wherein there is an interval for every pair of consecutive events;
an interval generator generating an interval list from the event list and the clock data;
a second component receiving the interval list;
the second component interpolating the location of an animated object based on interval data and current time;
the second component providing a progress value to a low-level animation subsystem;
and
the low-level animation subsystem determining a current value for a varying property of an animated object.

19. (Original) The method of claim 18 wherein causing output to be produced based on the current time data and the interval data comprises, determining an interval, and determining a progress value within that interval.

20. (Original) The method of claim 19 further comprising, causing an animation property value to be determined based on the progress value, such that the animation property value varies as the current time varies.

21. (Original) The method of claim 18 wherein generating interval data based on the clock data includes, building an event list based on the clock data, and processing the event list to generate the interval data.

22. (Original) The method of claim 21 further comprising receiving an interactive event, and further comprising, building a modified event list based on the clock data and the interactive event.

23. (Original) The method of claim 22 wherein building a modified event list comprises adding an implicit event based on the interactive event.

24. (Original) The method of claim 22 further comprising, marking an event as unused based on the interactive event.

25. (Original) The method of claim 18 wherein causing output to be produced based on current time data and the interval data comprises constructing a frame at a rate that corresponds to a frame refresh rate of a graphics subsystem.

26. (Previously Presented) A computer-readable storage medium having a computer-executable instructions for performing the method of claim 18.

27. (Previously Presented) A computer program product comprising a computer-readable storage medium having encoded thereon computer-executable instructions for performing the method of claim 18.

28. (Previously Presented) A computer system comprising the computer-readable storage medium as recited in claim 27 and further comprising:

computer processors capable of executing the instructions encoded upon the computer-readable storage medium; and

a graphics subsystem enabled to display graphics based upon the graphics data provided by the second component.

29 – 36 (Cancelled)